Version 1.1

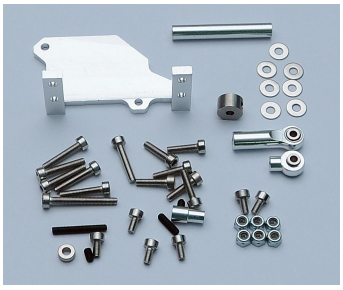
RC4WD Copperhead
R2D Transmission
Instruction guide

In this guide you will find out how to install the R2D transmission into an RC4WD Copperhead Kit. The disconnect tranny is used to help in competition crawling. It can give you better turning, uphill climbing, and also help with downhill descents.

Installation of the tranny is relatively easy. 2 out of 5 on a difficulty scale. Set-up of the dig for disconnect, and lock can be somewhat difficult. Probably 4 out of 5. Please take your time, read your radios owners manual and be patient. It may take you a few times to get it dialed in properly.

For this install we used a few items from RC4WD and a couple tools. Below you will find an items list.

<u>RC4WD parts used</u>
X-0361 R2 Black Tranny with Disconnect. There is also a silver version.
X-0420 Sideways R2 Servo Mount and Steering kit
X-0317 Monster Lubrication oil for Trans and Axle


<u>Other items needed</u>
Blue Thread locker

<u>Tools needed</u>
Metric allen wrenches
Needle nose Pliers

When you install your R2D, you will want to use some Blue thread locker on the metal to metal parts. The included nuts have nylon inserts to prevent them from backing off, but all other metal to metal surfaces will stay in place better with the thread locker. Anytime you see an *, this notes the need for thread locker. (*please be sure to get blue thread locker, it is removable.***)**

Items included in X-0361 R2 Black Tranny with Disconnect.

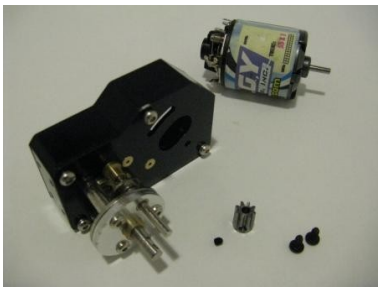
R2 Dig tranny disconnect.
(1) 32 pitch pinion gear
(1) Clear Dust cover
(1) set screw for pinion
(1) Optional spring (for use when you have a servo without enough power)
(2) Motor screws
(6) M3 Flat washers

Items included in X-0351

(1) AX10 R2 Skid plate
(1) Short Link
(2) M3 short rod ends
(2) M3 socket set screws
(3) Different size dig sliders
(5) M3 conical washers
(1) two stage collar
(6) M3 Nylock nuts
(6) M3 X 6mm SHCS
(6) M3 X 12mm SHCS
(1) M3 X 10mm SHCS
(6) M3 X 16mm SHCS
(1) M3 Regular Nut
(6) M3 Flat washers
Misc. other set screws

Step 1. <u>Motor Installation</u>

First you need to install the motor into the R2D tranny. Use an Allen wrench to install the set screw into the Pinion gear supplied. Then install the Pinion gear onto the motor and tighten the set screw. If the motor has the flat on the shaft, make sure and align the set screw up with the flat of the motor shaft.

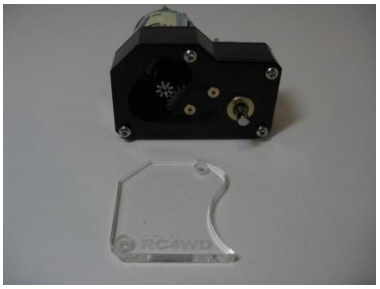


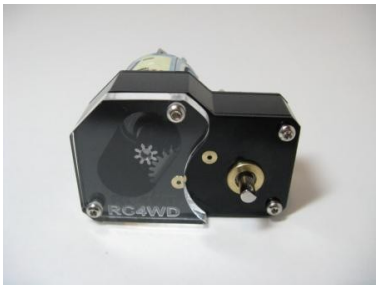
Next install the motor into the tranny on the same side as the disconnect. Using the black motor screws and washers supplied insert the screws thru the holes in the tranny then into the motor. Make sure to tighten the screws only part way. You will want to align the pinion and R2D gear mesh, then tighten the screws all the way down.

Proper gear mesh can make the R2D gears last a long time, and will reduce gear noise. If you set the lash to tight it will wear the gears and be very loud. The mesh in the photo is just about right. You will want to use some Monster Lube to lubricate the gears. More lube is better.

<u>At this point the shafts will be almost impossible to turn.</u>

You can now install the clear cover like shown in the next photos. Remove the two screws on the R2 case and use them to install the cover.





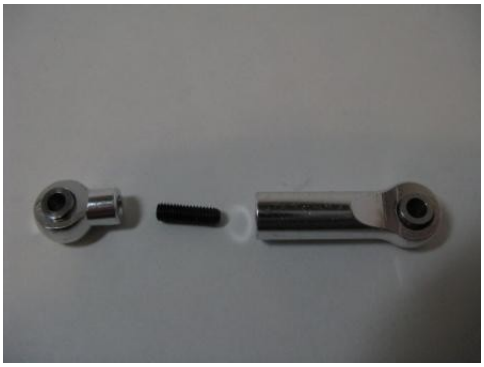
Step 2. <u>Servo Installation</u>

You can install the servo into the copperhead chassis. You will want to install your servo arm before inserting the servo. Depending on the size of your servo you may be able to install from the top or bottom. The photo shown below, shows the servo mounted from the top.
Use (2) M3 X 12mm SHCS and (2) M3 flat washers.

Step 3. <u>Linkage buildup</u>

In this step you will build the linkage for the dig setup.

A. ***Link assembly***
Use the small M3 rod end and the large M3 rod end with a M3 X 10 SSS. Assemble like shown in the second photo. *



B. ***Link install onto R2D and servo***

In this step you will need a few items from you bag. In some cases your set-up might require you to change a few things. There are plenty of additional parts in the bag for extra set-ups.

For this install you can use these items below.

(1) M3 X 12mm SHSC, (1) M3 X 25mm SHCS, (1) M3 Regular nut, (3) M3 Flat Washers, a special two stage collar, and a large dig collar.

You can see in the second photo below that you need to insert the M3 X 25mm SHCS into a M3 F/W then into one end of the link. Then install (2) M3 F/W and the two stage collar. Install the end of the screw into the large dig collar.

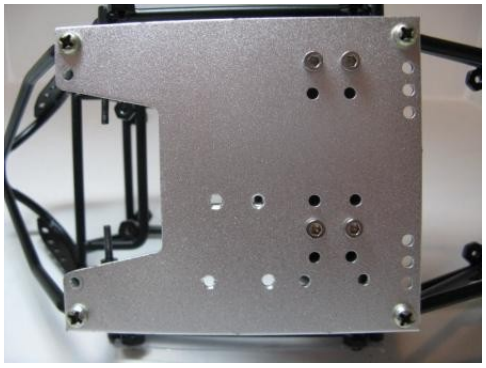
Slide the dig collar onto the dig shaft coming out the back of the R2D and tighten. *

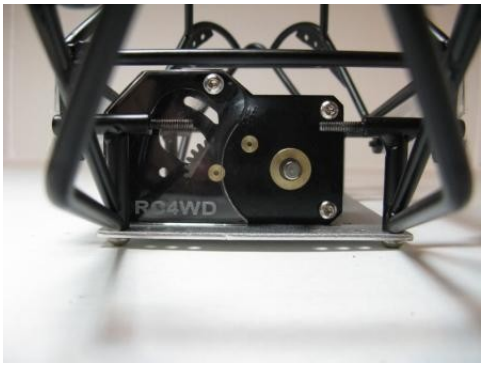
<u>Additional tips</u>
Be careful when using the dig collars provided that you don't tighten the screws to much, as they may strip.

Using a Dremel and a grinding bit you could apply a flat spot on the dig shaft. Check your alignment before performing any modifications.

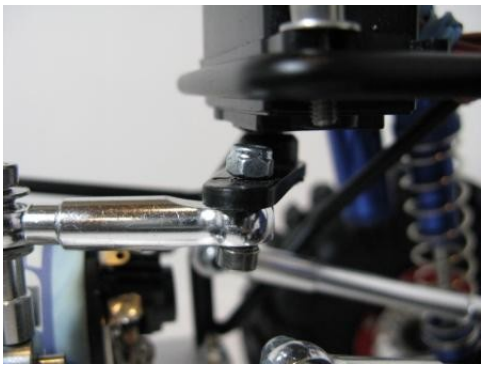
Step 4. <u>R2D installation</u>

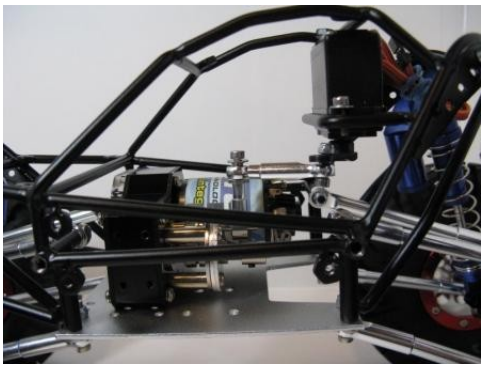
You can now install the R2D tranny into the Copperhead chassis. Use the (4) M3 X 6mm SHCS included in your kit to attach the tranny to the Copperhead tranny plate.





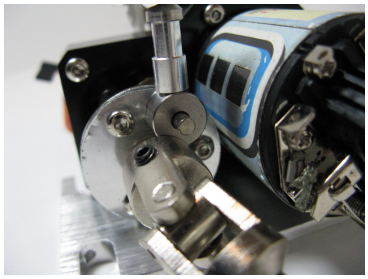
Use the M3 X 12mm SHCS to install the other end of the link onto the servo arm. Use the nut to secure the SHCS and link to the servo arm.



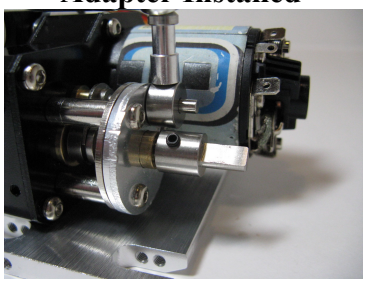


You can now install you drive shafts. Below shows a series of photos. If you have any issues installing the drive shaft to the dig side you can use the provided adapter. (shown below)

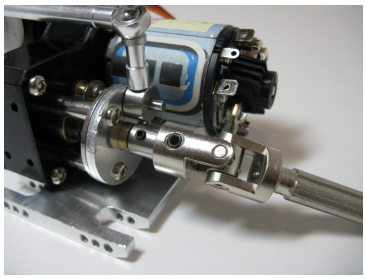
Driveshaft Issue



Adapter Installed

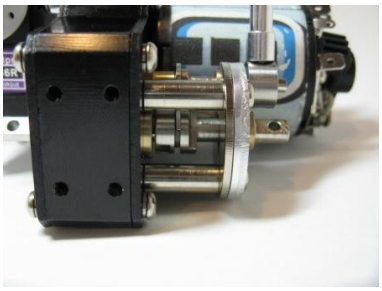
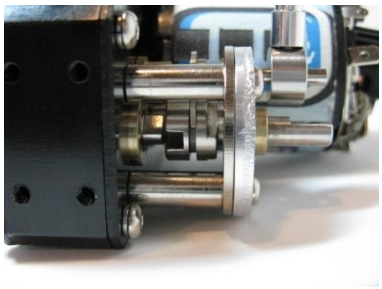
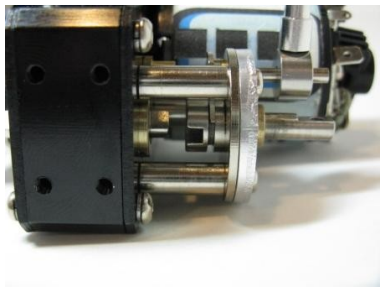


No Driveshaft Issue



Adjusting your dig can be a very tricky. Please be patient. It has three positions. You can use all three, one, or just two. The photos below show the three positions.

4 wheel Drive (connected) 2 wheel drive (disconnect) 2 wheel drive (locked)

Additional steps for Copperhead assembly can be found under the Copperhead assembly manual on the RC4WD site.

Additional tips

Remember to clean your dig unit on a regular basis. It can get dirty and cause issues. It is very important to use a light oil to help with lubrication of the dig.
Please understand that setting up the dig to work will take some time. Be patient and if you have questions refer back to the RC4WD forum.

Thanks for your Purchase,
Team RC4WD